

Application Type Renewal  
Facility Type Industrial Waste  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL INDUSTRIAL WASTE (IW)  
AND IW STORMWATER**

Application No. PA0044741  
APS ID 274875  
Authorization ID 946303

**Applicant and Facility Information**

Applicant Name	<u>Hanover Foods Corp</u>	Facility Name	<u>Hanover Foods</u>
Applicant Address	<u>1486 York Street PO Box 334</u> <u>Hanover, PA 17331-0334</u>	Facility Address	<u>1550 York Street PO Box 334</u> <u>Hanover, PA 17331-0334</u>
Applicant Contact	<u>Donald Herr</u>	Facility Contact	<u>Byron Musser</u>
Applicant Phone	<u>(717) 632-6000</u>	Facility Phone	<u>(717) 632-6000</u>
Client ID	<u>62075</u>	Site ID	<u>271646</u>
SIC Code	<u>2033</u>	Municipality	<u>Penn Township</u>
SIC Description	<u>Manufacturing - Canned Fruits And Vegetables</u>	County	<u>York</u>
Date Application Received	<u>October 1, 2012</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>October 12, 2012</u>	If No, Reason	<u>Significant CB Discharge</u>
Purpose of Application	<u>Renewal and Amendment of an NPDES permit for discharge of industrial waste and NCCW</u>		

**Summary of Review**

This protection report is for the renewal of NPDES Permit No. PA 0044741 for Hanover Foods Corporation in Penn Township, York County. The Hanover Foods Corporation is a food processing company that produces canned, glass packed and frozen vegetable goods (beans, potatoes, beats and tomatoes). During the food processing operations, Hanover Foods generates non-contact cooling water (NCCW) and process wastewater. However, the NCCW actually touches the cans to cool them down. If any of the cans open, there is a high probability of spillage into the water.

Industrial wastewater (IW) from the food processing operations flows to a pretreatment building where solids are screened and removed for cattle feed. The IW is then pumped to an anaerobic biofiltration system. The biofiltration system consists of an anaerobic digester with plastic media for growing bio-films. Sludge from the anaerobic digester is removed and land applied off site. Wastewater exiting the biofiltration system enters a methane stripper and a flow splitter before flowing to either of the two parallel clarifiers. Effluent from the clarifiers then flows to two 7 million gallon facultative lagoons. Each lagoon is HDPE lined with tapered sides. The lagoons are approximately 18' deep with a one percent slope decrease towards the lagoon effluent discharge. Each lagoon contains nine aerators that operate the majority of the day. Currently, 0.45 MGD from Lagoon No. 1 is discharged to the Penn Township wastewater treatment plant (per a pretreatment agreement between Hanover Foods and Penn Township). The remaining IW exiting Lagoon No. 1 enters Lagoon No. 2 where it mixes with NCCW that is discharged from Hanover Foods operations. Lagoon No. 2 then discharges into two polishing ponds before exiting through Outfall 001 into Oil Creek.

Historically, the NCCW flowed to a cooling water sump that drained into a pump station. The pumps then conveyed the NCCW to Lagoon No. 2. Typically Lagoon No. 1 is cleaned out twice per year; each cleaning process takes approximately one month. Lagoon No. 2 is cleaned out every five to ten years. During lagoon maintenance, NCCW was directed to the polishing ponds before discharging some of the effluent through Outfall 003 into a UNT of Oil Creek and Outfall 001. However, in 2002 the Department identified temperature permit violations and lack of aquatic life in the tributary. Subsequently Hanover Foods mitigated the high temperature discharge by rerouting all NCCW to the polishing ponds.

Approve	Return	Deny	Signatures	Date
X			J. Pascal Kwedza / Environmental Engineering Specialist	May 21, 2015
			Jay E. Patel, P.E. / Environmental Engineer Manager	

Summary of Review

Hanover Food's NPDES permit PA 0044741, issued March 15, 2000, expired on April 1, 2005. The Department requires a permittee to submit an NPDES renewal application 180 days prior to the permit expiration date; the Hanover Foods Corporation NPDES permit renewal application was received on October 26, 2004 (156 days before the expiration date). Since 2005, Hanover Foods has been operating under administrative extension of their existing permit without a renewed NPDES permit. They are obligated to a February 24, 2003 Consent Order and Agreement (COA) with the Department which addressed violations and illegal discharges and assessed civil penalties for those actions. The COA also required that Hanover Foods submit an NPDES permit amendment application within six months of the COA agreement date. During the 2003 COA negotiations, Department biologist determined that the Point of First Use (POFU) for aquatic life is the confluence of Outfall 001 and formerly Outfall 003. Because of the temperature of the NCCW, the Department determined that temperature limitations would need to be imposed or all NCCW would need to be discharged directly to the main stem of Oil Creek. Hanover Foods was notified on September 11, 2002 of these options and subsequently on November 8, 2002 submitted a Corrective Action Plan. On April 3, 2003 Hanover Food submitted an NPDES permit amendment application. The permit amendment was issued on January 6, 2004 and this amendment stated the following: NCCW is prohibited from direct discharge to surface waters; NCCW is routed to the IW treatment plant; and the pump station overflow line is permanently sealed. The original Outfall 001 and 003 were eliminated and Outfall 005 was re-designated Outfall 001. Also during the NPDES amendment, three storm water outfalls (002, 003, and 004) were added to the permit.

**EXISTING LIMITS:**

DISCHARGE LIMITATIONS							MONITORING REQUIREMENTS	
Discharge Parameter	Mass Units (lbs/day)		Concentrations (mg/l)				Monitoring Frequency	Sample Type
	Average Monthly	Maximum Daily	Inst. Minimum	Average Monthly	Maximum Daily	Inst. Maximum		
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/week	Grab
CBOD <sub>5</sub> (5/1 to 10/31)	XXX	XXX	XXX	10	XXX	15	2/week	8-hour comp
CBOD <sub>5</sub> (11/1 to 4/30)	XXX	XXX	XXX	20	XXX	30	2/week	8-hour comp
NH <sub>3</sub> -N (5/1 to 10/31)	XXX	XXX	XXX	1.3	XXX	2.6	2/week	8-hour comp
NH <sub>3</sub> -N (11/1 to 4/30)	XXX	XXX	XXX	3.9	XXX	7.8	2/week	8-hour comp
Fecal Coliform	XXX	XXX	XXX	XXX	M&R	XXX	1/month	8-hour comp
Temperature	XXX	XXX	XXX	XXX	M&R	XXX	1/day	i-s

**Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.84</u>
Latitude	<u>39° 48' 52.91"</u>	Longitude	<u>76° 56' 53.54"</u>
Quad Name	<u>Hanover</u>	Quad Code	<u>2030</u>
Wastewater Description: <u>Process wastewater and non-contact cooling water</u>			
Receiving Waters	<u>Oil Creek</u>	Stream Code	<u>08312</u>
NHD Com ID	<u>57474431</u>	RMI	<u>5.43</u>
Drainage Area	<u>6.44</u>	Yield (cfs/mi²)	<u>0.138</u>
Q7-10 Flow (cfs)	<u>0.88</u>	Q7-10 Basis	<u>Penn Township Gage</u>
Elevation (ft)	<u>537</u>	Slope (ft/ft)	<u>                    </u>
Watershed No.	<u>7-H</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>                    </u>	Existing Use Qualifier	<u>                    </u>
Exceptions to Use	<u>[ FORMTEXT ]</u>	Exceptions to Criteria	<u>[ FORMTEXT ]</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Nutrients, Siltation</u>		
Source(s) of Impairment	<u>Agriculture</u>		
TMDL Status	<u>Pending</u>	Name	<u>                    </u>
Background/Ambient Data	<u>[ FORMTEXT ]</u>	Data Source	<u>                    </u>
pH (SU)	<u>[ FORMTEXT ]</u>		<u>[ FORMTEXT ]</u>
Temperature (°F)	<u>[ FORMTEXT ]</u>		<u>[ FORMTEXT ]</u>
Hardness (mg/L)	<u>[ FORMTEXT ]</u>		<u>[ FORMTEXT ]</u>
Other:	<u>[ FORMTEXT ]</u>		<u>[ FORMTEXT ]</u>
Nearest Downstream Public Water Supply Intake	<u>Wrightsville Water Supply Co.</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u>[ FORMTEXT ]</u>
PWS RMI	<u>[ FORMTEXT ]</u>	Distance from Outfall (mi)	<u>40.1</u>

Changes Since Last Permit Issuance: none

**PUBLIC WATER SUPPLY:**

The most immediate public water supply intake is the Wrightsville Water Supply Co. intake on the Susquehanna River, located approximately 40.09 miles downstream of the Hanover Foods facility. Due to distance and dilution, effluent from Hanover Foods Outfall 001 is not expected to impact the Wrightsville Water Supply intake.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0.000000
Latitude	39° 48' 45.48"	Longitude	76° 56' 51.02"
Wastewater Description:	Stormwater		
Outfall No.	003	Design Flow (MGD)	0.000000
Latitude	39° 48' 33.52"	Longitude	76° 57' 0.51"
Wastewater Description:	Stormwater		
Outfall No.	004	Design Flow (MGD)	0.000000
Latitude	39° 48' 30.53"	Longitude	76° 57' 8.05"
Wastewater Description:	Stormwater		

Changes Since Last Permit Issuance: none

#### **STORMWATER:**

The stormwater outfalls 002, 003 and 004 were originally placed in the NPDES permit by an amendment. Conditions for the stormwater outfalls have not changed and will therefore remain in the permit. Outfall 002 according to Hanover Foods 2003 site plan, is located at the confluence of the UNT of Oil Creek and Oil Creek. This outfall receives flow from a spring and stormwater runoff from roadways and the facility site and 003 receives drainage from the waste storage area surrounding the freezing unit, west of Wilson Avenue. This outfall leads to a swale adjacent to the rail road tracks passing through the site. Outfalls 002 and 003 are required to be monitored annually for BOD<sub>5</sub>, COD, TSS, pH, Oil and Grease, Total Kjeldahl Nitrogen, Total Phosphorus and Total Iron. Outfall 004 is a spill way for a stormwater detention basin that discharges into a wetland area leading to an UNT of Oil Creek. This detention basin receives runoff from areas of the facility that experience little or no material handling. No monitoring is required for this outfall

Compliance History

DMR Data for Outfall 001 (from January 1, 2013 to January 31, 2015)

Month	Flow Avg-Max	pH Min-Max	D.O mg/l	TRC mg/l	Fecal Coli	TSS Avg Mo - Max daily mg/l	CBOD5 Avg Mo - Max daily mg/l	NH3-N Avg Mo mg/l	Temp 0F Max
Jan-15	0.68 - 1.47	7.8 - 8.1	8.7	0.03	7000	28 - 40	7.5 - 9.4	1	62
Dec-14	0.983 - 1.68	7.6 - 8.1	6.9	0.03	6760	23 - 40	7.1 - 12.9	0.92	74
Nov-14	0.99 - 1.79	7.6 - 8.1	6.1	0.04	23000*	35* - 45	10.6 - 17.1	0.84	74
Oct-14	0.91 - 1.59	7.7 - 8.6	3.2*	0.04	330	11 --28	2.1 - 4.8	0.93	118
Sep-14	1.07 - 2.14	7.7 - 8.2	2.4*	0.03	410	31* - 66*	10.1* - 32.3*	2.25*	105
Aug-14	0.96 - 1.42	7.6 - 8.4	4.2	0.04	829	25 - 38	7.8 - 13.2	0.81	89
Jul-14	0.76 - 1.25	7.9 - 8.4	4.7*	0.04	14	26 - 42	7.6 - 11.4	1.93*	90
Jun-14	0.83 - 1.43	7.3 - 8.7	5.1	0.06	58	29 - 50	8.6 - 14.1	1.73	88
May-14	0.61 - 1.25	7.6 - 9.0	6.3	0.07	38	25 - 39	7.9 - 12.4	1.3	82
Apr-14	0.48 - 0.68	8.0 - 8.7	8.3	0.02	520	28 - 50	5.7 - 8.6	0.16	75
Mar-14	0.53 - 0.98	7.9 - 8.6	6.2	0.03	240	35* - 72*	8.4 - 13.3	0.38	70
Feb-14	0.70 - 1.09	7.8 - 8.3	7.1	0.02	909	11 --28	7.8 - 11.5	0.67	62
Jan-14	0.69 - 1.10	7.8 - 8.1	6.6	0.02	38000*	22 - 32	8.8 - 17.2	0.72	63
Dec-13	0.70 - 1.33	7.9 - 8.2	9.1	0.04	1560	13 - 17	3.8 - 5.4	0.7	61
Nov-13	0.88 - 1.94	7.8 - 8.3	3.2*	0.03	73000*	25 - 61*	34.6*	1.1	113
Oct-13	0.79 - 1.45	7.7 - 8.2	6	0.05	104	22 - 28	4.8 - 6.5	0.85	87
Sep-13	0.79 - 1.24	7.8 - 8.8	6.1	0.03	480	20 - 28	5.2 - 6.9	0.56	89
Aug-13	0.70 - 1.24	7.8 - 8.9	6.1	0.03	6700*	20 - 32	4.2 - 6.8	0.54	89
Jul-13	0.77 - 1.62	7.2 - 9.4*	6.2	0.02	99	35* - 55	3.8 - 6.6	0.2	93
Jun-13	0.65 - 1.11	7.8 - 8.6	5.6	0.02	16	19 - 40	6.6 - 18.1*	2.3*	87
May-13	0.53 - 0.84	8.2 - 8.7	7.3	0.02	1830*	24 - 36	4.3 - 6.4	0.19	82
Apr-13	0.58 - 1.20	7.9 - 8.9	6.9	0.03	12400*	41* - 56	7.2 - 11.8	0.19	74
Mar-13	0.67 - 1.15	7.8 - 8.3	8.4	0.02	1	35* - 49	7.6 - 11.7	0.93	64
Feb-13	0.57 - 0.68	7.7 - 8.1	8	0.02	12	16 - 21	3.4 - 4.4	0.33	64
Jan-13	7.6 - 8.2	7.6 - 8.2	6.6	0.02	1	17 - 29	4.7 - 7.4	0.57	65

Violations are indicated with \* (asterisks)

**Compliance History**

**Effluent Violations for Outfall 001**

Based on the 2003 COA, Hanover Foods Corporation continues to pay the Department penalties for effluent violations because the IWTP has been unable to meet effluent limits for six consecutive months. On August 20, 2013, the department executed a new consent order and agreement (COA) with Hanover Foods to address continuous violations at the plant. The new COA replaces the 2003 COA and calls for a major upgrade to the treatment plant and also assessed a civil penalty for violations from June 2011 to the date COA was signed(August 20, 2013) and established stipulation for effluent violations that will occur in the future. The DMR data summary for 20013 and 2014 is added, monitoring data for fecal Coliform shows discharges are higher than the required maximum allowed in the summer and winter months. Permit limit will be established for Fecal Coliform. Numerous effluent violations continue to occur after COA was signed. Refer to DMR summary. Current inspection at the facility listed some effluent violations and an unauthorized discharge. The compliance section directed the permittee to resolve these violations and address the unauthorized discharge from occurring in the future. Hanover foods submitted a WQM permit to upgrade the plant to treat up to 0.19MGD process wastewater and also to discharge a maximum of 0.65MGD of NCCW. Both treated process effluent and the NCCW will combine for a total discharge of 0.84MGD to outfall 001. Effluent limitation will be based on the combined flow of 0.84 MGD.

**Development of Effluent Limitations**

<b>Outfall No.</b>	001	<b>Design Flow (MGD)</b>	0.84
<b>Latitude</b>	39° 48' 52.91"	<b>Longitude</b>	76° 56' 53.54"
<b>Wastewater Description:</b> Industrial wastewater and NCCW			

**TECHNOLOGY BASED LIMITATIONS:**

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:  
The Hanover Foods Corporation, as a vegetable processor of beets, dry beans, snap beans and potatoes, which discharges food processing wastewater, is required to meet the federal Effluent Limitation Guidelines (ELGs) per 40 CFR § 407 Subpart G. According to the production data, dry beans and potatoes are consistently processed year round, whereas beets and snap beans are processed during different periods. There is a period of one to three months where production overlaps for all of the vegetables processed at the facility.

The BOD<sub>5</sub> ELGs for this type of vegetable processing are as follows:

BOD <sub>5</sub> (lb/1000 lb raw material)			
	Maximum for any 1 day	Average of daily values for 30 consecutive days	Annual average
Beets	1.01	0.71	0.57
Dry Beans	2.50	1.76	1.21
Snap Beans	1.51	0.87	0.58
Potatoes	0.90	0.66	0.55

40 CFR § 407 Subpart G also contains ELGs for TSS. The TSS ELGs for this type of vegetable processing are as follows:

TSS (lb/1000 lb raw material)			
	Maximum for any 1 day	Average of daily values for 30 consecutive days	Annual average
Beets	1.88	1.47	1.12
Dry Beans	4.48	3.13	1.97
Snap Beans	2.67	1.80	1.04
Potatoes	1.69	1.37	1.09

Based on the ELG values, the most stringent limit that will apply to Hanover Foods is the ELGs for potatoes. The average daily production over 5years according to the production values provided by Hanover Foods Corporation is 362,936.16lbs/day. The following are the resultant ELG mass-based effluent limitations

Table 1

**BOD<sub>5</sub> Mass-Based Effluent Limitations(lbs/day)**

	Maximum for any 1 day	Average of daily values for 30 consecutive days	Annual average
Potatoes	326.64*	239.54	199.6

\*Max limit for any day = 362,936.16lbs/day x 0.9lbs/1000lbs = 326.64lbs/day

Based on the ELG values, as well as the production values provided by Hanover Foods Corporation, the following are the resultant ELG mass-based effluent limitations:

Table 2

TSS Mass-Based Effluent Limitations(lbs/day)			
	Maximum for any 1 day	Average of daily values for 30 consecutive days	Annual average
Potatoes	613.36*	497.22	377.45**

\*Max limit for any day = 362,936.16lbs/day x 1.69lbs/1000lbs = 326.64lbs/day

\*\* Annual average snap beans ELG most stringent is used for calculation.

## WATER QUALITY-BASED LIMITATIONS:

### STREAMFLOWS

Penn Township with a discharge located about 1,480 feet upstream, of Hanover food discharge has a flow meter within Oil Creek and has reportedly been monitoring stream flows for several years. The Township requested that these data be used as the basis for determining water quality limits, and the writer responded that it may or may not be possible to use the data, depending on how long measurements have been taken. Data for November 2001 through November 2004 were submitted with the permit application. During 2002, a "drought year," the average monthly flow in August was 0.53 MGD (0.82 cfs). The lowest seven day consecutive average flow, from August 13-19, was 0.346 MGD (0.535 cfs). During this same period of time, the average flow measured in the Susquehanna River at Gage No. 01576000 (Marietta) was 3,571 cfs. The Q<sub>7-10</sub> flow statistic, at this gage, according to USGS, is 3,800 cfs for post-regulation years (1972-1996).

For the current permit renewal, the permittee, upon request, submitted daily flow data for Oil Creek for their entire monitoring period to date (October 26, 2001 through June 9, 2014). Review of the data revealed that the aforementioned low flow period during August 2002 still remains as the lowest 7-day period for the entire 12+ year dataset. The second lowest average 7-day flow was 0.393 MGD, which occurred during August 2006.

The closest USGS gage (no. 01574500 on Codorus Creek at Spring Grove, PA) is over 8 miles downstream of the Penn Township discharge. It is also downstream of the Lake Marburg dam, which has a large influence on the streamflow. Therefore, USGS gage data will not be utilized, as StreamStats and the permittee's gage data may be deemed more reliable.

The drainage area upstream of Hanover Foods discharge is 6.4mi taken from the previous protection report. The Q<sub>7-10</sub> estimate for Hanover foods is 0.88cfs (0.138 cfs/mi<sup>2</sup> x 6.44 mi). This information is used to obtain a chronic or 30 day (Q<sub>30-10</sub>), and an acute or 1 day (Q<sub>1-10</sub>) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

$$Q_{7-10} = 0.88 \text{ cfs}$$

$$Q_{30-10} = 1.36 * 0.88 \text{ cfs} = 1.20 \text{ cfs}$$

$$Q_{1-10} = 0.64 * 0.88 \text{ cfs} = 0.56 \text{ cfs}$$

### WQM 7.0 Data:

Due to the close proximity of Hanover foods Corp's discharge to the Penn Township discharge, both discharges have historically been modelled together. The following three nodes were used for the WQM 7.0 model.

<u>Parameter</u>	<u>Value</u>	<u>Source</u>
DO Goal	5.0 mg/L	(Requirement for WWF)
Discharge pH (Node 1)	7.5	(DMR Data)
Discharge pH (Node 2)	7.9	(Most recent protection report)
Discharge Temperature (Node 1)	25°C	(Default)
Discharge Temperature (Node 2)	30°C	(Most recent protection report)



Stream pH	7.82	(See below) <sup>(1)</sup>
Stream Temperature	25°C	(Default for WWF)
Stream NH <sub>3</sub> -N	0.0 mg/L	(Default)

(1) Stream pH was determined by Hanover Foods in 1993 while conducting WET tests (per the 2008 protection report for Penn Township).

*Node input data:*

Node 1:	Penn Township Outfall 001 on Oil Creek (08213)
	Elevation: 537 ft (USGS National Map Viewer)
	Drainage Area: 3.87 mi <sup>2</sup> (USGS PA StreamStats)
	River Mile Index: 5.69 (PA DEP eMapPA)
	Low Flow Yield: 0.138 cfs/mi <sup>2</sup>
	Discharge Flow: 4.2 MGD (NPDES Application)
Node 2:	Hanover Foods Outfall 001
	Elevation: 532 ft (USGS National Map Viewer)
	Drainage Area: 6.44 mi <sup>2</sup> (USGS PA StreamStats)
	River Mile Index: 5.41 (PA DEP eMapPA)
	Low Flow Yield: 0.138 cfs/mi <sup>2</sup>
	Discharge Flow: 0.840 MGD (NPDES Permit)
Node 3:	Just before confluence with UNT 08223
	Elevation: 517 ft (USGS National Map Viewer)
	Drainage Area: 6.72 mi <sup>2</sup> (USGS PA StreamStats)
	River Mile Index: 4.56 (PA DEP eMapPA)
	Low Flow Yield: 0.138 cfs/mi <sup>2</sup>
	Discharge Flow: 0.000 MGD

**NH<sub>3</sub>-N :**

NH<sub>3</sub>-N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013).

The attached WQM7.0 printout presented in attachment B indicates that, for a discharge of 0.84 MGD, a limit of 1.0 mg/L NH<sub>3</sub>-N as a monthly average and 2.0 mg/L NH<sub>3</sub>-N as a daily maximum is necessary to protect the aquatic life from toxicity effects (model values rounded based on the Doc. No. 362-0400-001 10/97). The WQM limits of 1.0 mg/L as an average monthly and 2.0 mg/L as a daily maximum are recommended with a bi-weekly 24-hour composite type. An instantaneous maximum of 2.5 mg/L is also recommended based on the industrial multiplier of 2.5 (see 362-0400-001).

**CBOD<sub>5</sub> :**

The WQM 7.0 model, employed by the Department, calculates CBOD<sub>5</sub> and not BOD<sub>5</sub>. To compare the ELGs to the WQBELs results from WQM 7.0, BOD<sub>5</sub> must be converted to CBOD<sub>5</sub>. Engineering literature, suggests that CBOD<sub>5</sub> is approximately 15-20% less than BOD<sub>5</sub>. For conversion of the ELG BOD<sub>5</sub> into CBOD<sub>5</sub>, a factor 15% is used. The table below represents the conversion results:

Table 3

BOD <sub>5</sub> to CBOD <sub>5</sub> Mass-Based Effluent Limitations(lbs/day)			
	Maximum for any 1 day	Average of daily values for 30 consecutive days	Annual average
Potatoes	277.6*	203.61	169.66

\*326.64 x 0.85 = 277.6 lbs/day

The attached computer printout of the WQM 7.0 stream model indicates that 18.0 mg/l as an average monthly limit for CBOD<sub>5</sub> is adequate to protect the water quality of the stream. However, the previous NPDES permit, established an average monthly CBOD<sub>5</sub> limit of 10.0 mg/l and a maximum daily and instantaneous maximum limit of 15.0 mg/l and 20.0 mg/l, respectively, during the period from May 1<sup>st</sup> to October 31<sup>st</sup>. For the period from November 1<sup>st</sup> to April 30<sup>th</sup>, the previous permit established limits of 20 mg/L as an average monthly, 30 as a maximum daily and 40 mg/L as an instantaneous maximum. The previous summer permit limit concentrations produce a more stringent mass limits than the ELG mass-based effluent limitations (10.0 mg/L X 0.84 MGD X 8.34 lbs/gal = 70.06 lbs/day monthly average, 105.09lbs/day Maximum and 140lbs/day). Therefore, the existing summer limits, are recommended for inclusion in the renewed NPDES permit for summer months. For the winter months, the recommended WQM model results of 18mg/l monthly average, 27mg/l daily maximum and 36mg/l IMAX concentration is more stringent than the existing winter limitation and it produces a more stringent mass limits than (Table 3) ELG mass-based effluent limitations (18.0 mg/L X 0.84 MGD X 8.34 lbs/gal = 126 lbs/day monthly average, 189lbs/day Maximum and 252lbs/day IMAX). Therefore, the recommended WQM 7.0 limits will be included in the renewed NPDES permit for winter months. A bi-weekly 24 hour composite sample type is recommended per the Department's NPDES Permit Development document (no. 362-0400-001).

#### **TOTAL SUSPENDED SOLIDS:**

The previous permit established a TSS limit of 30 mg/l as an average monthly with 60 mg/l and 75 mg/l as a maximum daily and instantaneous maximum, respectively. The previous permit limit concentrations produce a more stringent mass limits than (Table 2) ELG mass-based effluent limitations (30.0 mg/L X 0.84 MGD X 8.34 lbs/gal = 210.17 lbs/day monthly average; 420.34lbs/day daily maximum and 525lbs/day IMAX). Therefore, the existing concentration limits with their corresponding mass limits is recommended for the renewed permit. A bi-weekly 24 hour composite sample type is recommended per the Department's NPDES Permit Development document (no. 362-0400-001).

#### **TOTAL PHOSPHORUS :**

Oil Creek, located in both the Penn and Heidelberg Townships, is listed as impaired due to nutrients and siltation. The Pennsylvania Code, Chapter 96 Water Quality Standards Implementation states the following (96.5. Nutrient discharges (c)): "When it is determined that the discharge of phosphorus, alone or in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses in a free flowing surface water, phosphorus discharges from point source discharges shall be limited to an average monthly concentration of 2 mg/L. More stringent controls on point source discharges may be imposed, or may be otherwise adjusted as a result of a TMDL which has been developed." Therefore a monthly limit of 2mg/l written in the permit pending TMDL development. A bi-weekly 24-hour composite sample type is also recommended. Monitor and report is required until phosphorus reduction controls are installed during the plant upgrade.

#### **CHESAPEAKE BAY STRATEGY:**

In 2003, EPA established state-wide cap loads for Total Nitrogen and Total Phosphorus for Pennsylvania that are needed to ensure compliance with new water quality standards enacted to restore the water quality of the Chesapeake Bay. DEP released Pennsylvania's Chesapeake Bay Tributary Strategy (CBTS) in January of 2005 to guide Pennsylvania's efforts to meet those cap loads, and made revisions to the Strategy in 2006-2007 following a stakeholder process. Industrial discharges have been prioritized by Central Office based on their delivered TN loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. Allocation of cap loads for significant industrial dischargers is divided into five categories. 1. Facilities that reduced TN and TP prior to 2002 – Cap Loads established using the 2002 load or the current (2007-2008) load, whichever is greater, plus 10%. 2. Facilities that submitted a Nutrient Reduction Evaluation (NRE) as requested by DEP and reduced their TN and TP loads between 2002 and 2009 – Cap Loads established using the current (2007-2008) load, plus 10%. 3. Facilities that submitted an NRE and planning to reduce TN and TP loads through facility upgrades or operational improvements – Cap Loads established as requested by the facility in the NRE, with a compliance schedule. 4. Facilities that are already at "low levels" of nutrient discharge loads – Cap Loads established at current (2007-2008) loads. 5. Facilities that did not submit an NRE or submitted an NRE but did not propose to reduce nutrient loads – Cap Loads established at current (2007-2008) loads, reduced by 33%.

Prior to implementing DEPs industrial discharger cap load, EPA published the Chesapeake Bay Total Maximum Daily Load (TMDL) in December of 2010. The TMDL was prompted by insufficient progress and continued poor water quality in

the Chesapeake Bay and its tidal tributaries. In order to address the TMDL, Pennsylvania developed a Chesapeake Watershed Implementation Plan (WIP) – Phase 1 in January 2011 and Phase 2 WIP and a supplement to phase 2 WIP.

Outlined in the Phase 1 and Phase 2 WIP, and the supplement to WIP 2, permitting for significant Industrial discharges will follow the original categorical approach established during the stakeholder process in 2006-2007. This facility falls in category 5, did not submit NRE but proposed upgrade to their treatment plant to meet cap load. The facility's allocated cap loads are 26,385lb/yr TN and 979lb/yr TP for a total flow of 0.84MGD.

A TMDL does not exist for Oil Creek as of May 2015. Since Oil Creek is impaired for nutrients, the purchase of credits outside of the Oil Creek Watershed to meet the Bay Cap Load requirement is prohibited; however, Hanover Foods may purchase credits from within the watershed from facilities such as Penn Township.

Based on the information provided, in the event that Hanover Foods is unable to meet their annual cap loads, their intention is to purchase additional credits from Penn Township, which is approximately 1400' upstream of the Hanover Foods Corp's facility and within the Oil Creek watershed. A compliance schedule is provided in the permit for the facility to comply with the Chesapeake Bay cap loads upon completion of plant upgrade..

#### **TOTAL RESIDUAL CHLORINE:**

The attached computer printout presented in attachment C utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.1 mg/l monthly average and 0.3mg/l IMAX would be needed to prevent toxicity concerns. This is consistent with the existing permit and the facility is meeting this limit. Therefore, it is recommended that a TRC limit of 0.1 mg/l monthly average and 0.3 mg/l maximum be applied again for this permit cycle.

#### **FECAL COLIFORM:**

Fecal coliforms have historically been elevated within the Hanover Foods discharge. The previous permit did not contain a fecal effluent limit only monitor report. The DMR data contained several notably high fecal coliform results over the last five years. Refer to summary of DMR data table above, results above department Imax requirement are indicated with asterisks. Effluent limits will established in the permit during this permit renewal.

Per 25 Pa Code § 92a.47, the Hanover Foods IWTP must meet a geometric mean of 200 CFUs/100 mL with an instantaneous maximum of 1,000 CFUs/100 mL from May 1st to September 30 and a geometric mean of 2,000 CFUs/100 mL with an instantaneous maximum of 10,000 CFUs/100 mL from October 1st to April 30th for the final effluent.

#### **DISSOLVED OXYGEN:**

A minimum D.O. of 5.0 mg/L is required. This is consistent with the previous permit and current Department criteria.

#### **pH:**

The existing effluent discharge pH of above 6 and below 9 standard units according to Chapter 95.2(2) will remain. These units are more stringent than the ELG's 6 to 9.5 S.U. for canned food processors.

#### **COLOR**

Color was a concern in the past, using the following mass balance equation with a streamflow of 0.88cfs ( 0.57MGD), Color Criterion = 75PCU and a discharge of 0.84MGD,

$$75 \text{ PCU} (0.8400 + 0.57) \text{ MGD} = X (0.8400 \text{ MGD}) + 0 \times 0.57 \text{MGD}$$
$$X = 125.9 \text{ PCU's}$$

A color limit of 126 Platinum Cobalt Units (PCU) resulted however, application report 3 samples with a maximum color measured as 25 PCU. Color limitation is not required, monitor and report will be required to collect more data for further analysis.

### **OIL & GREASE**

This discharge is from a potential industrial Oil-bearing wastewater. PA code § 95.2 requires this type of discharge should not contain more than 15 milligrams of oil per liter as a daily average value nor more than 30 milligrams of oil per liter at any time, and should not cause discoloration in the receiving stream. The permit will be written with the limitations on oil and grease.

### **TOXICS**

A reasonable potential (RP) was done for pollutant Groups 1 and 2 submitted with the application and re-sample of some toxics pollutants reported as undetected but above criterion. All pollutants that were detected in the application sampling and re-sampling were entered into the Toxics Screening Analysis spreadsheet to determine if any pollutants were candidates for PENTOXSD modeling. All pollutants that were determined to be candidates for PENTOXSD modeling were entered into the PENTOXSD model. The most stringent WQBELs recommended by the PENTOXSD model (attachment D) were then entered into the same Toxics Screening Analysis spreadsheet in order to determine which parameters of concern need further action.

The RP Screening Analysis spreadsheet presented in attachment E indicates that in exception of Total Cadmium, PENTOXSD Modelling is not required for the following parameters detected in the application sampling data: Total Aluminum, Total Barium, Total Boron, dissolved Iron, Total Iron, Total Manganese and Total Copper. Total Cadmium was entered into PENTOXSD Model to establish WQBELs for further analysis. Results from the PENTOXSD model is presented in attachment D. A monthly average limitation of 0.77µg/l is recommended for Total Cadmium. The recommended monthly average limit of 0.0008mg/l and maximum daily limit of 0.0016mg/l will be applied to the permit with a bi-weekly 24-hr composite sampling. Permittee will monitor Total Cadmium in the interim until plant upgrade is completed.

The recommended limitations follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

### **TDS, CHLORIDE, SULFATE, BROMIDE, & 1,4-DIOXANE**

The maximum daily TDS discharge submitted with the application is 452mg/l which is equivalent to 3,166.53 lbs/day based on the design flow of 0.84MGD. The discharge level for TDS is well below 1000mg/l and 20,000 lbs/day cut-off to require monitoring in the permit. Average of 3 samples of bromide submitted with application is 0.64mg/l is below 1mg/l therefore no monitoring is required. There is no data on 1,4-dioxane. Guidance on TDS follows the logic below:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.
- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.
- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

### **CHEMICAL ADDITIVES**

The permittee submitted chemical additive notification forms for thirteen chemical additives currently being used at the facility. In exception of Sodium hypochlorite and Chlorine liquefied gas, the proposed daily maximum usage rate for the chemicals appear to be below the maximum usage rate allowable in the creek. The permittee is re-calculating the usage rate for some of the chemical additives to include dilution factors. If the results show all chemical additive usage rates proposed are below the maximum allowable, they can be used otherwise alternatives will be re-evaluated. There is a chlorine limitation in the permit to control chlorine discharge to the creek. The permit will be written with the new chemical additive usage and notification requirement.

### **TEMPERATURE:**

Currently, Hanover Foods records temperature when NCCW is discharged directly to Lagoon #2. Temperature data reported on DMR show temperature is consistently at or above the department's criteria. Temperature calculations for the discharge was done using the Thermal discharge Spreadsheet case 2 with a proposed discharge of 0.84MGD. Since there is no ambient temperature data, the Department default values were used. The results are presented in attachment F. Data provided with DMR indicate the facility will be in violation of the temperature limitations in winter months without some level of cooling of the effluent prior to discharge. The facility requested 3 years schedule to comply with the temperature limitation. Monitoring will continue in the interim.

### **ANTIDEGRADATION (93.4):**

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

### **CLASS A WILD TROUT FISHERIES:**

No Class A Wild Trout Fisheries are impacted by this discharge.

### **303d LISTED STREAMS:**

The discharge is located on the 2008 303d listed stream segment as impaired for nutrients and siltation. TMDL is schedule for 2015. Following PA Code, Chapter 96.5c an average monthly concentration of 2 mg/L for Total Phosphorus is required pending TMDL development. A re-opener condition will be in the permit informing the permittee that a more stringent control on point source discharges may be imposed, as a result of final TMDL development. No further reduction in Total Phosphorus is warranted at this time.

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001) and/or BPJ.

**Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
Color (Pt-Co Units)	XXX	XXX	XXX	XXX	Report	XXX	2/month	Grab
Temperature (°F) Jan 1-31	XXX	XXX	XXX	XXX	51	XXX	1/day	I-S
Temperature (°F) Feb 1-29	XXX	XXX	XXX	XXX	52	XXX	1/day	I-S
Temperature (°F) Mar 1-31	XXX	XXX	XXX	XXX	74	XXX	1/day	I-S
Temperature (°F) Apr 1-15	XXX	XXX	XXX	XXX	83	XXX	1/day	I-S
Temperature (°F) Apr 16-30	XXX	XXX	XXX	XXX	89	XXX	1/day	I-S
Temperature (°F) May 1-15	XXX	XXX	XXX	XXX	85	XXX	1/day	I-S
Temperature (°F) May 16-31	XXX	XXX	XXX	XXX	106	XXX	1/day	I-S
Temperature (°F) Jun 1-15	XXX	XXX	XXX	XXX	106	XXX	1/day	I-S

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Temperature (°F) Jun 16-30	XXX	XXX	XXX	XXX	110	XXX	1/day	I-S
Temperature (°F) Jul 1-31	XXX	XXX	XXX	XXX	101	XXX	1/day	I-S
Temperature (°F) Aug 1-31	XXX	XXX	XXX	XXX	99	XXX	1/day	I-S
Temperature (°F) Sep 1-15	XXX	XXX	XXX	XXX	94	XXX	1/day	I-S
Temperature (°F) Sep 16-30	XXX	XXX	XXX	XXX	88	XXX	1/day	I-S
Temperature (°F) Oct 1-15	XXX	XXX	XXX	XXX	82	XXX	1/day	I-S
Temperature (°F) Oct 16-31	XXX	XXX	XXX	XXX	76	XXX	1/day	I-S
Temperature (°F) Nov 1-15	XXX	XXX	XXX	XXX	69	XXX	1/day	I-S
Temperature (°F) Nov 16-30	XXX	XXX	XXX	XXX	59	XXX	1/day	I-S
Temperature (°F) Dec 1-31	XXX	XXX	XXX	XXX	50	XXX	1/day	I-S
CBOD5 May 1 - Oct 31	70	105	XXX	10	15	20	2/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	126	189	XXX	18	27	36	2/week	24-Hr Composite
Total Suspended Solids	210	420	XXX	30	60	75	2/week	24-Hr Composite
Oil and Grease	Report	Report	XXX	15	30	30	2/week	Grab

Outfall , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	7.0	14	XXX	1.0	2.0	2.5	2/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	21	42	XXX	3.0	6.0	7.5	2/week	24-Hr Composite
Total Phosphorus	14	28	XXX	2.0	4.0	5.0	2/week	24-Hr Composite
Total Cadmium	0.0056	0.011	XXX	0.0008	0.0016	0.002	2/week	24-Hr Composite

Compliance Sampling Location: 001

Other Comments:



**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001) and/or BPJ.

**Outfall 002 and 003, Effective Period: Permit Effective Date through Permit Expiration Date**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

**Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date**

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	26,385	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	979	XXX	XXX	XXX	1/month	Calculation

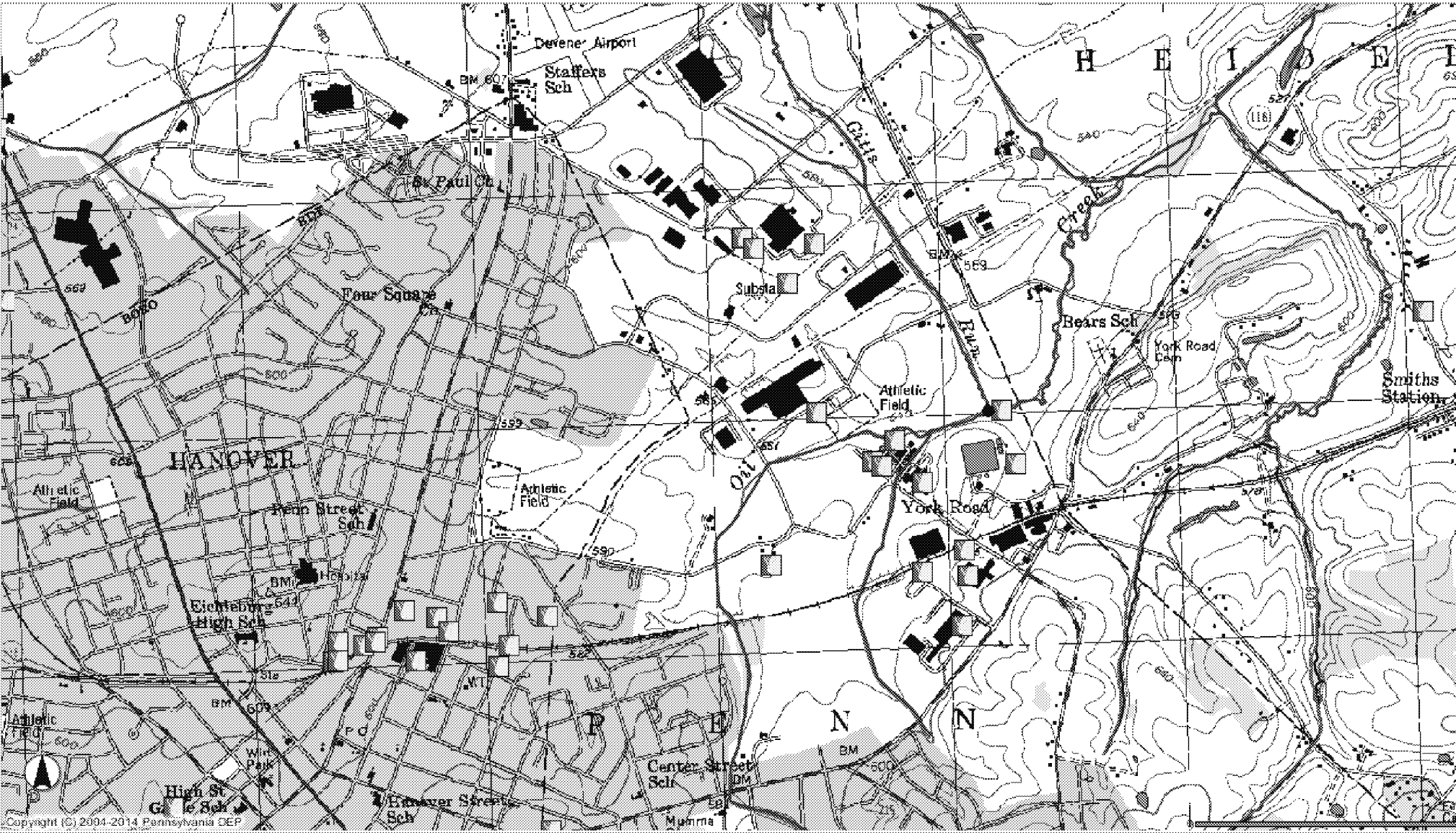
Tools and References Used to Develop Permit	
[ FORMCHECKBOX ]	WQM for Windows Model (see Attachment <b>B</b> )
[ FORMCHECKBOX ]	PENTOXSD for Windows Model (see Attachment <b>D</b> )
[ FORMCHECKBOX ]	TRC Model Spreadsheet (see Attachment <b>C</b> )
[ FORMCHECKBOX ]	Temperature Model Spreadsheet (see Attachment <b>F</b> )
[ FORMCHECKBOX ]	Toxics Screening Analysis Spreadsheet (see Attachment <b>E</b> )
[ FORMCHECKBOX ]	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
[ FORMCHECKBOX ]	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
[ FORMCHECKBOX ]	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
[ FORMCHECKBOX ]	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
[ FORMCHECKBOX ]	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
[ FORMCHECKBOX ]	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.

[ FORMCHECKBOX ]	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
[ FORMCHECKBOX ]	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
[ FORMCHECKBOX ]	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
[ FORMCHECKBOX ]	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
[ FORMCHECKBOX ]	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
[ FORMCHECKBOX ]	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
[ FORMCHECKBOX ]	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
[ FORMCHECKBOX ]	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
[ FORMCHECKBOX ]	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
[ FORMCHECKBOX ]	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
[ FORMCHECKBOX ]	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
[ FORMCHECKBOX ]	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.

<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	
<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	Design Stream Flows, 391-2000-023, 9/98.
<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	SOP: Establishing Effluent limitations
<div>]</div> <div>[</div> <div>FORMCHECKBOX</div> <div>]</div>	Other: [ FORMTEXT ]
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A. Topographical

Hanover Foods Discharge Point



B. WQM Model Results

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
07H		8213	OIL CREEK				
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
5.610	Penn Township	PA0037150	4.200	CBOD5	22.24		
				NH3-N	1.1	2.2	
				Dissolved Oxygen			5
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
5.430	Hanover Foods	PA0044741	0.840	CBOD5	18.64		
				NH3-N	1.02	2.04	
				Dissolved Oxygen			5

### Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8213	OIL CREEK	5.610	537.00	3.87	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.138	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.82	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

#### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Penn Township	PA0037150	4.2000	0.0000	0.0000	0.000	25.00	7.50

#### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70



NPDES Permit Fact Sheet NPDES Permit No. PA0044741  
Hanover Foods

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8213	OIL CREEK	5.430	532.00	6.44	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.138	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.82	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Hanover Foods	PA0044741	0.8400	0.0000	0.0000	0.000	30.00	7.90

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

### Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8213	OIL CREEK	4.560	517.00	6.72	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.138	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.82	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

#### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

#### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

### WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>								
07H		8213		OIL CREEK								
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
5.610	0.53	0.00	0.53	6.4974	0.00526	.665	22.63	34.01	0.47	0.024	25.00	7.52
5.430	0.89	0.00	0.89	7.7969	0.00327	.687	27.99	40.73	0.45	0.118	25.75	7.57
<b>Q1-10 Flow</b>												
5.610	0.34	0.00	0.34	6.4974	0.00526	NA	NA	NA	0.46	0.024	25.00	7.51
5.430	0.57	0.00	0.57	7.7969	0.00327	NA	NA	NA	0.44	0.120	25.78	7.56
<b>Q30-10 Flow</b>												
5.610	0.73	0.00	0.73	6.4974	0.00526	NA	NA	NA	0.47	0.023	25.00	7.52
5.430	1.21	0.00	1.21	7.7969	0.00327	NA	NA	NA	0.46	0.115	25.72	7.57

**WQM 7.0 Modeling Specifications**

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
07H	8213	OIL CREEK

#### NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
5.610	Penn Township	4.05	4.26	4.05	4.2	2	1
5.430	Hanover Foods	1.84	2.64	3.59	2.61	2	1

#### NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
5.610	Penn Township	.99	1.1	.99	1.1	2	0
5.430	Hanover Foods	.53	1.03	.92	1.02	2	1

#### Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
5.61	Penn Township	22.24	22.24	1.1	1.1	5	5	0	0
5.43	Hanover Foods	18.64	18.64	1.02	1.02	5	5	0	0

### WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name	
07H	8213	OIL CREEK	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
5.610	4.200	25.000	7.518
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
22.630	0.665	34.011	0.467
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>
20.70	1.324	1.01	1.029
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
5.246	26.283	Tsivoglou	5
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>		
0.024	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.002	20.62	1.01
	0.005	20.54	1.01
	0.007	20.46	1.01
	0.009	20.38	1.00
	0.012	20.30	1.00
	0.014	20.22	1.00
	0.016	20.14	1.00
	0.019	20.06	0.99
	0.021	19.98	0.99
	0.024	19.90	0.99
			5.31
			5.36
			5.41
			5.47
			5.51
			5.56
			5.60
			5.64
			5.68
			5.72
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
5.430	5.040	25.748	7.567
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
27.987	0.687	40.734	0.452
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>
18.98	1.286	0.95	1.089
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
5.715	16.061	Tsivoglou	5
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>		
0.118	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.012	18.61	0.94
	0.024	18.25	0.93
	0.035	17.89	0.92
	0.047	17.54	0.90
	0.059	17.20	0.89
	0.071	16.87	0.88
	0.082	16.54	0.87
	0.094	16.21	0.86
	0.106	15.90	0.85
	0.118	15.59	0.84
			5.60
			5.51
			5.45
			5.41
			5.39
			5.38
			5.38
			5.39
			5.41
			5.43

C. TRC Calculations

B	C	D	E	F	G
<b>TRC EVALUATION</b>					
Enter Facility Name in E3					
Input appropriate values in B4:B8 and E4:E7					
0.88	= Q stream (cfs)	0.5	= CV Daily		
0.84	= Q discharge (MGD)	0.5	= CV Hourly		
30	= no. samples	1	= AFC_Partial Mix Factor		
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor		
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)		
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)		
	= % Factor of Safety (FOS)		= Decay Coefficient (K)		
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.III	WLA afc = 0.235		1.3.2.III	WLA cfc = 0.222
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.088		5.1d	LTA_cfc = 0.129
Source	Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML MULT = 1.231			
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.108		AFC	
		INST MAX LIMIT (mg/l) = 0.353			
WLA afc	$(.019/e^{(-k \cdot AFC\_tc)}) + [(AFC\_Yc \cdot Qs \cdot .019 / Qd \cdot e^{(-k \cdot AFC\_tc)}) \dots + Xd + (AFC\_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT afc	$EXP((0.5 \cdot \ln(cvh^2 + 1)) - 2.326 \cdot \ln(cvh^2 + 1)^{0.5})$				
LTA_afc	wla_afc * LTAMULT_afc				
WLA_cfc	$(.011/e^{(-k \cdot CFC\_tc)}) + [(CFC\_Yc \cdot Qs \cdot .011 / Qd \cdot e^{(-k \cdot CFC\_tc)}) \dots + Xd + (CFC\_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT_cfc	$EXP((0.5 \cdot \ln(cvd^2 / no\_samples + 1)) - 2.326 \cdot \ln(cvd^2 / no\_samples + 1)^{0.5})$				
LTA_cfc	wla_cfc * LTAMULT_cfc				
AML MULT	$EXP(2.326 \cdot \ln((cvd^2 / no\_samples + 1)^{0.5}) - 0.5 \cdot \ln(cvd^2 / no\_samples + 1))$				
AVG MON LIMIT	MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc) * AML_MULT)				
INST MAX LIMIT	1.5 * ((av_mon_limit / AML_MULT) / LTAMULT_afc)				

D. PENTOXSD Model Results

PENTOXSD Analysis Results

Recommended Effluent Limitations

<u>SWP Basin</u>	<u>Stream Code:</u>	<u>Stream Name:</u>			
07H	8213	OIL CREEK			
RMI	Name	Permit Number	Disc Flow (mgd)		
5.43	Hanover Foods	PA0044741	0.8400		
Parameter	Effluent Limit	Governing Criterion	Max. Daily Limit	Most Stringent	
	(µg/L)		(µg/L)	WQBEL (µg/L)	WQBEL Criterion
CADMIUM	0.77	CFC	1.202	0.77	CFC



PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
8213	5.43	532.00	6.44	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	pH	Stream Hard	pH	Analysis Hard	pH
	(cfs)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.138	0	0	0	0	0	0	0	0	7.82	212	0	0	0
Qlt		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
Hanover Foods	PA0044741	0.84	0	0	0	0	0	0	0	197	7.9

Parameter Data

Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc
	(µg/L)	(µg/L)			(µg/L)					(µg/L)
CADMIUM	1000000	0	0.5	0.5	0	0	0	0	1	0

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
8213	4.56	517.00	6.72	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	pH	Stream Hard	pH	Analysis Hard	pH
	(cfs)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.138	0	0	0	0	0	0	0		7.82	212	0	0	0
Qlt		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
		0	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc
	(µg/L)	(µg/L)			(µg/L)					(µg/L)
CADMIUM	0	0	0.5	0.5	0	0	0	0	1	0

PENTOXSD Analysis Results

Hydrodynamics

<u>SWP Basin</u>		<u>Stream Code:</u>		<u>Stream Name:</u>							
07H		8213		OIL CREEK							
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
<b>Q7-10 Hydrodynamics</b>											
5.430	0.8887	0	0.8887	1.29947	0.0033	0.5707	18.372	32.195	0.2087	0.2547	3.097
4.560	0.9274	0	0.9274	NA	0	0	0	0	0	0	NA
<b>Qh Hydrodynamics</b>											
5.430	6.7021	0	6.7021	1.29947	0.0033	1.0096	18.372	18.198	0.4314	0.1232	5.599
4.560	6.9561	0	6.9561	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
5.43	Hanover Foods	PA0044741						
AFC								
Q7-10:	CCT (min)	3.097	PMF	1	Analysis pH	7.865	Analysis Hardness	203.092
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	CADMIUM	0	0	0	0	4.008	4.384	7.382
Dissolved WQC. Chemical translator of 0.914 applied.								
CFC								
Q7-10:	CCT (min)	3.097	PMF	1	Analysis pH	7.865	Analysis Hardness	203.092
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	CADMIUM	0	0	0	0	0.402	0.457	0.77
Dissolved WQC. Chemical translator of 0.879 applied.								
THH								
Q7-10:	CCT (min)	3.097	PMF	NA	Analysis pH	NA	Analysis Hardness	NA
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	CADMIUM	0	0	0	0	NA	NA	NA
CRL								
Qh:	CCT (min)	5.599	PMF	1				
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	CADMIUM	0	0	0	0	NA	NA	NA

**NPDES Permit Fact Sheet NPDES Permit No. PA0044741**  
**Hanover Foods**

**E. Toxic Analysis Spreadsheet**

**TOXICS SCREENING ANALYSIS**  
**WATER QUALITY POLLUTANTS OF CONCERN**  
**VERSION 2.2**

Facility: **Hanover Foods Corp**  
 Analysis Hardness (mg/L): **202**

NPDES Permit No.: **PA0034011**  
 Discharge Flow (MGD): **0.84**

Outfall: **001**  
 Analysis pH (SU): **7.9**

	Parameter	Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
<b>Group 1</b>	Total Dissolved Solids	452000	500000	No		
	Chloride		250000			
	Bromide	640	N/A	No		
	Sulfate	33900	250000	No		
	Fluoride	740	2000	No		
<b>Group 2</b>	Total Aluminum	230	750	No		
	Total Antimony	1	5.6	No		
	Total Arsenic	5	10	No		
	Total Barium	880	2400	No		
	Total Beryllium	1	N/A	No		
	Total Boron	240	1600	No		
	Total Cadmium	0.48	0.456	Yes	0.77	Establish Limits
	Total Chromium		N/A			
	Hexavalent Chromium	10	10.4	No		
	Total Cobalt	10	19	No		
	Total Copper	12	17.0	No		
	Total Cyanide		N/A			
	Total Iron	150	1500	No		
	Dissolved Iron	64	300	No		
	Total Lead	3	7.8	No		
	Total Manganese	26	1000	No		
	Total Mercury	0.02	0.05	No		
	Total Molybdenum		N/A			
	Total Nickel	10	94.6	No		
	Total Phenols (Phenolics)		5			
	Total Selenium	< 2	5.0	No (Value < QL)		
	Total Silver	2	12.7	No		
	Total Thallium	< 0.5	0.24	No (Value < QL)		
	Total Zinc	38	217.4	No		

**NPDES Permit Fact Sheet NPDES Permit No. PA0044741**  
**Hanover Foods**

**F. Temperature Calculations**

<b>Facility: Hanover Foods</b>						
<b>Permit Number:</b> PA0044741						
<b>Stream Name:</b> Oil Creek						
<b>Analyst/Engineer:</b> J.P Kwedza						
<b>Stream Q7-10 (cfs):</b> 0.88						
	<b>Facility Flows<sup>1</sup></b>				<b>Stream Flows</b>	
	<b>Stream</b>	<b>External</b>	<b>Consumptive</b>	<b>Discharge</b>	<b>Adj. Q7-10</b>	<b>Downstream<sup>2</sup></b>
	<b>(Intake)</b>	<b>(Intake)</b>	<b>(Loss)</b>		<b>Stream Flow</b>	<b>Stream Flow</b>
	<b>(MGD)</b>	<b>(MGD)</b>	<b>(MGD)</b>	<b>(MGD)</b>	<b>(cfs)</b>	<b>(cfs)</b>
Jan 1-31	0	0.84	0	0.84	2.8	4.1
Feb 1-29	0	0.84	0	0.84	3.1	4.4
Mar 1-31	0	0.84	0	0.84	6.2	7.5
Apr 1-15	0	0.84	0	0.84	8.2	9.5
Apr 16-30	0	0.84	0	0.84	8.2	9.5
May 1-15	0	0.84	0	0.84	4.5	5.8
May 16-30	0	0.84	0	0.84	4.5	5.8
Jun 1-15	0	0.84	0	0.84	2.6	3.9
Jun 16-30	0	0.84	0	0.84	2.6	3.9
Jul 1-31	0	0.84	0	0.84	1.5	2.8
Aug 1-15	0	0.84	0	0.84	1.2	2.5
Aug 16-31	0	0.84	0	0.84	1.2	2.5
Sep 1-15	0	0.84	0	0.84	1.0	2.3
Sep 16-30	0	0.84	0	0.84	1.0	2.3
Oct 1-15	0	0.84	0	0.84	1.1	2.4
Oct 16-31	0	0.84	0	0.84	1.1	2.4
Nov 1-15	0	0.84	0	0.84	1.4	2.7
Nov 16-30	0	0.84	0	0.84	1.4	2.7
Dec 1-31	0	0.84	0	0.84	2.1	3.4
<sup>1</sup> Facility flows are not required (and will not affect the permit limits) if all intake flow is from the receiving stream (Case 1), consumptive losses are small, and permit limits will be expressed as Million BTUs/day.						
<sup>2</sup> Downstream Stream Flow includes the discharge flow.						
Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.						
Version 1.0 -- 08/01/2004      Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017						
NOTE: The user can only edit fields that are blue.						
NOTE: MGD x 1.547 = cfs.						

**NPDES Permit Fact Sheet NPDES Permit No. PA0044741**  
**Hanover Foods**

Facility: <b>Hanover Foods</b>						
Permit Number: PA0044741						
Stream: Oil Creek						
	<b>WWF</b>			<b>WWF</b>	<b>WWF</b>	
	Ambient Stream	Ambient Stream	Target Maximum	Daily	Daily	
	Temperature (°F)	Temperature (°F)	Stream Temp. <sup>1</sup>	WLA <sup>2</sup>	WLA <sup>3</sup>	at Discharge
	(Default)	(Site-specific data)	(°F)	(Million BTUs/day)	(°F)	Flow (MGD)
Jan 1-31	35	0	40	N/A -- Case 2	50.8	0.84
Feb 1-29	35	0	40	N/A -- Case 2	51.9	0.84
Mar 1-31	40	0	46	N/A -- Case 2	74.4	0.84
Apr 1-15	47	0	52	N/A -- Case 2	83.5	0.84
Apr 16-30	53	0	58	N/A -- Case 2	89.5	0.84
May 1-15	58	0	64	N/A -- Case 2	84.7	0.84
May 16-30	62	0	72	N/A -- Case 2	106.5	0.84
Jun 1-15	67	0	80	N/A -- Case 2	106.4	0.84
Jun 16-30	71	0	84	N/A -- Case 2	110.0	0.84
Jul 1-31	75	0	87	N/A -- Case 2	100.8	0.84
Aug 1-15	74	0	87	N/A -- Case 2	99.3	0.84
Aug 16-31	74	0	87	N/A -- Case 2	99.3	0.84
Sep 1-15	71	0	84	N/A -- Case 2	93.7	0.84
Sep 16-30	65	0	78	N/A -- Case 2	87.7	0.84
Oct 1-15	60	0	72	N/A -- Case 2	81.8	0.84
Oct 16-31	54	0	66	N/A -- Case 2	75.8	0.84
Nov 1-15	48	0	58	N/A -- Case 2	68.8	0.84
Nov 16-30	42	0	50	N/A -- Case 2	58.7	0.84
Dec 1-31	37	0	42	N/A -- Case 2	50.1	0.84
<sup>1</sup> This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1°F above ambient stream temperature is allocated.						
<sup>2</sup> The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.						
<sup>3</sup> The WLA expressed in °F is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110°F are displayed as 110°F.						